

CLAIMS

What is claimed is:

1. A method comprising:

identifying, by a software application in a computing system, display characteristics of multiple display devices; and

generating, by the software application in the computing system, simultaneous independent views of an electronic document on the display devices by separately rendering the electronic document to each of the display devices based on the identified display characteristics of the device.

2. The method of claim 1, wherein generating the independent views comprises separately rendering the electronic document according to presentation tags associated with content in the electronic document, the presentation tags indicating device-dependent rendering to be applied to the content based upon assigned device types of the display devices.

3. The method of claim 2, wherein identifying the display characteristics comprises periodically re-identifying the display characteristics of the display devices, in conjunction with multiple iterations of the separate renderings of the electronic document to allow display devices to be added and removed dynamically.

4. The method of claim 2, further comprising managing the presentation tags associated with the content based on user input.

5. The method of claim 1, wherein a first of the independent views includes rendered content from the document not included in a second of the independent views.

6. The method of claim 5, wherein the content comprises annotations of the document.

7. The method of claim 5, wherein identifying the display characteristics comprises periodically obtaining display characteristics of the display devices.

8. The method of claim 7, wherein obtaining the display characteristics comprises obtaining screen resolution and color depth information of the multiple display devices.

9. The method of claim 5, wherein the computing system comprises a primary display device from the multiple display devices, the first view being provided to the primary display device, the second view being provided to a secondary display device from the multiple display devices, and the primary display device having less display capability than the secondary display device.

10. The method of claim 9, wherein the primary display device comprises a monochrome display device that presents the first view without color, and the secondary display device comprises a full-color display device that presents the second view with full color.

11. The method of claim 5, wherein the rendered content comprises a first page of the document, the first page presented in the first view being different than a second page of the document presented in the second view.

12. The method of claim 5, wherein generating the independent views of the electronic document comprises generating a user interface with the first view that provides control over the independent views on the display devices both together and separately.

13. The method of claim 12, further comprising:
receiving input adding new content to a page of the document during a presentation; and
rendering the new content to the first view but not to the second view.

14. The method of claim 12, wherein the display devices comprise three or more display devices.

15. The method of claim 12, wherein the second view includes additional rendered content not included in the first view.
16. The method of claim 12, wherein the electronic document comprises an electronic document in a predetermined final format that defines an appearance of the electronic document.
17. The method of claim 16, wherein the predetermined final format comprises PDF.
18. A software product tangibly embodied in a machine-readable medium, the software product comprising instructions operable to cause a data processing apparatus to perform operations from an application layer of the data processing apparatus, the operations comprising:
 - identifying display characteristics of multiple display devices; and
 - generating, by the software application in the computing system, simultaneous independent views of an electronic document on the display devices by separately rendering the electronic document to each of the display devices based on the identified display characteristics of the device.
19. The software product of claim 18, wherein generating the independent views comprises separately rendering the electronic document according to presentation tags associated with content in the electronic document, the presentation tags indicating device-dependent rendering to be applied to the content based upon assigned device types of the display devices.
20. The software product of claim 19, wherein identifying the display characteristics comprises periodically re-identifying the display characteristics of the display devices, in conjunction with multiple iterations of the separate renderings of the electronic document to allow display devices to be added and removed dynamically.

21. The software product of claim 19, wherein the operations further comprise managing the presentation tags associated with the content based on user input.

22. The software product of claim 18, wherein a first of the independent views includes rendered content from the document not included in a second of the independent views.

23. The software product of claim 22, wherein the content comprises annotations of the document.

24. The software product of claim 22, wherein identifying the display characteristics comprises periodically obtaining display characteristics of the display devices.

25. The software product of claim 24, wherein obtaining the display characteristics comprises obtaining screen resolution and color depth information of the multiple display devices.

26. The software product of claim 22, wherein the computing system comprises a primary display device from the multiple display devices, the first view being provided to the primary display device, the second view being provided to a secondary display device from the multiple display devices, and the primary display device having less display capability than the secondary display device.

27. The software product of claim 26, wherein the primary display device comprises a monochrome display device that presents the first view without color, and the secondary display device comprises a full-color display device that presents the second view with full color.

28. The software product of claim 22, wherein the rendered content comprises a first page of the document, the first page presented in the first view being different than a second page of the document presented in the second view.

29. The software product of claim 22, wherein generating the independent views of the electronic document comprises generating a user interface with the first view that provides control over the independent views on the display devices both together and separately.

30. The software product of claim 29, wherein the operations further comprise: receiving input adding new content to a page of the document during a presentation; and rendering the new content to the first view but not to the second view.

31. The software product of claim 29, wherein the display devices comprise three or more display devices.

32. The software product of claim 29, wherein the second view includes additional rendered content not included in the first view.

33. The software product of claim 29, wherein the electronic document comprises an electronic document in a predetermined final format that defines an appearance of the electronic document.

34. The software product of claim 33, wherein the predetermined final format comprises PDF.

35. A system comprising:
one or more peripheral display devices; and
a data processing system comprising a primary display device and a software application that generates simultaneous independent views of an electronic document on the display devices based on display characteristics of the display device as identified by the software application.

36. The system of claim 35, further comprising display buffers associated with the display devices, wherein the software application comprises a display engine that concurrently renders the electronic document multiple times, each rendering being done in a different display context to one of the display buffers.

37. The system of claim 35, wherein the software application identifies the display devices that are currently interfaced with the data processing system by periodically polling display interface hardware.

38. The system of claim 37, wherein the display characteristics comprise screen resolution and color depth information.

39. The system of claim 38, wherein the primary display device has less display capability than the one or more peripheral display devices.

40. The system of claim 39, wherein the primary display device comprises a monochrome display device, and the one or more peripheral display devices comprise one or more full-color display devices.

41. The system of claim 35, wherein the software application concurrently renders the electronic document multiple times according to presentation tags associated with content in the electronic document, the presentation tags indicating device-dependent rendering to be applied to the electronic document.

42. The system of claim 41, wherein a primary view from the independent views includes rendered content not included in a secondary view from the independent views.

43. The system of claim 42, wherein the primary view includes at least a portion of a user interface that provides control over the independent views on the display devices both together and separately, and the secondary view forms part of a slide show presentation.

44. The system of claim 43, wherein the electronic document comprises an electronic document in a predetermined final format that defines an appearance of the electronic document.

45. The system of claim 44, wherein the predetermined final format comprises PDF.

46. A system comprising:

one or more peripheral display devices; and

a data processing system comprising a primary display device and a software application that generates simultaneous independent views of an electronic document on the display devices based on display characteristics of the display device as identified by the software application, wherein a primary view from the independent views includes rendered content not included in a secondary view from the independent views, and the primary view includes at least a portion of a user interface that provides control over the independent views on the display devices both together and separately, and the secondary view forms part of a presentation.

47. The system of claim 46, further comprising display buffers associated with the display devices, wherein the software application comprises a display engine that concurrently renders the electronic document multiple times, each rendering being done in a different display context to one of the display buffers.

48. A system comprising:

software-application-means for accessing an electronic document; and

software-application-means for outputting multiple, simultaneous, independent views of the electronic document to different display hardware devices having different screen resolutions and color depths.

49. The system of claim 48, further comprising:
software-application-means for controlling the outputting software-application-means
based on user configuration.